GRUMMAN
plane news
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Sen. Inouye speaks out in strong support of F-14

Another strong defense of the F-14 program has been issued by Sen. Daniel Inouye of Hawaii.

In a move to clarify the "criticism, confusion, and contradictory information" concerning the Tomcat, Senator Inouye mentioned studies by the Navy, and by the National Aeronautics and Space Administration—plus Grumman briefings—and declared that "the F-14 aircraft, after more than 2½ years of development, is meeting or exceeding its guaranteed specifications." Then, in powerful brevity, he listed half a dozen reasons for supporting the F-14.

• "First, the growth in weight of the F-14 since the contract award is the lowest achieved in Naval aviation."

• "Second, the performance estimates of the F-14 developed by the Navy have been substantiated by an independent National Aeronautics and Space Agency assessment made at the request of the Department of Defense.

• "Third, (in reference to the Soviet threat,) Tomcat was sufficient to maintain air superiority through the 1980 time period. This projected performance of the F-14A was validated and proved vastly superior to modified versions of the F-4 aircraft.

(Continued on page 3)

Navy test team at Calverton for flight evaluation of F-14

Navy Preliminary Evaluatiom (NPE) of Tomcats 1-X and No. 2 is under way. In fact, the NPE began November 30 under the direction of Cdr. George White, team leader.

Thirty-two flights are planned, and half of them have been performed. The high-speed 1-X and the low-speed No. 2 will each fly for about 40 hours. The flights will probably end in mid-December.

The actual flights will be flown by Commander White and five pilots from the Naval Air Test Center at Patuxent River, Maryland. In addition to the six pilots, engineers and technical specialists —22 of them—are on the NPE team.

Basically, the NPE is a "full physical" on the aircraft. Of course, Grumman test pilots have performed similar tests earlier, but an independent flight check is mandatory, and that's what the Navy is conducting now.

Critique to come

Roughly 72 hours after the end of the last Navy flight, Commander White will submit a critique of the trials. During this briefing, Company officers as well as flight test personnel will be present. Some six weeks later the Navy will issue a full "mission suitability" report.

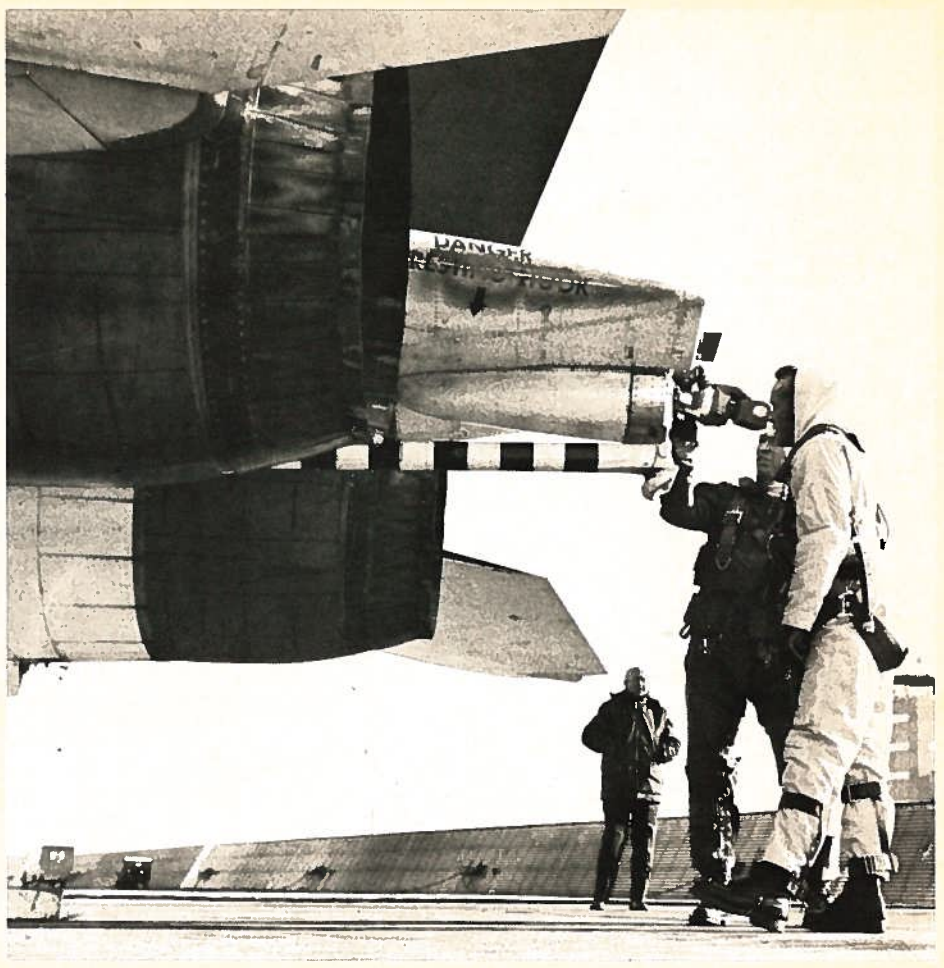
In the meantime, other things are going on in the Tomcat world. For example:

As the sun was rising last Monday, the fully assembled Tomcat No. 9 was rolled out of Plant 1, and then moved to Plant 4 where it was prepared for the road trip to Calverton.

The aircraft, built and checked out by a team headed by Frank Leone, is the fourth (and last) one ticketed for avionics tests at Grumman's facility at Point Mugu, California. Along with Tomcats 4, 5, and 6, No. 9 will be integrated with the AWG-9 missile system and will track live targets at the Missile Range.

While No. 9 posed for photographs last Monday, Tomcat 5, with some 10 flight-test hours behind it, was at Calverton and set to fly non-stop to Mugu as soon as weather conditions permitted. To accomplish that, a KC-130 tanker was scheduled to meet Tomcat 5 in the skies over Oklahoma City to "fill 'er up."

But to get back to No. 9: something's in store for it. Vice President Mike Pelehach, who's top man on the Tomcat program, is arranging for it to circle the Bethpage field once or twice as it starts its flight to Mugu. There's a double purpose in mind: to let Grummanites at Bethpage view the aircraft, and to salute the Plant 1 group that built her.



Taking a look. Cdr. George White (R), team leader for the Navy Preliminary Evaluation of Tomcats 1-X and No. 2, and Grumman Chief Test Pilot Chuck Sewell conduct pre-flight inspection on F-14 before test hop. (Photo by Dick Sander)

Third birthday. No, of course it wasn't the birthday of Lorraine Hannett, secretary to OAO Program Manager Ted Moorman. She was on hand with candles when the Plant 25 counter clicked off statistics for OAO's third anniversary in space: 15,751 orbits, 1,096 days in orbit, seven hours . . . oh, well, maybe that was fixed a bit for an early picture. But December 7 really marked three full years of useful observing, and the staff celebrated. (Photo by Fred Annette)

Brancati heads team at Mugu

Tom Brancati, formerly deputy manager of the Company's Point Mugu facility on the West Coast, is now manager. He reports directly to Pete Oram, F-14 Program manager.

Moving in to fill Brancati's old slot is Joe Smith, a man with 30 years' experience in Naval aviation and who has been with Grumman since September 1969.

Brancati joined the Company in 1963 in the Systems Analysis Engineering Department. He was on the engineering team that helped win the EA-6B contract and then became Project Engineer on the B. Three years later, in May of 1969, he went to Point Mugu as Grumman's deputy manager there.

In his new job, Brancati is responsible for coordinating and managing the efforts of all functional departments at Grumman's Point Mugu site so as to ensure successful operation of weapons system development and flight testing of Tomcat. That includes, according to Brancati, the jobs of forming tighter ties between Mugu and Bethpage, and of furthering "the solid and close relations we must maintain with the Navy to deliver a superb air superiority fighter. It's a national defense necessity."

Brancati has a Bachelor of Science degree from Long Island University. He has also had four years' experience in the Air Force with the Strategic Air Command's B-47.

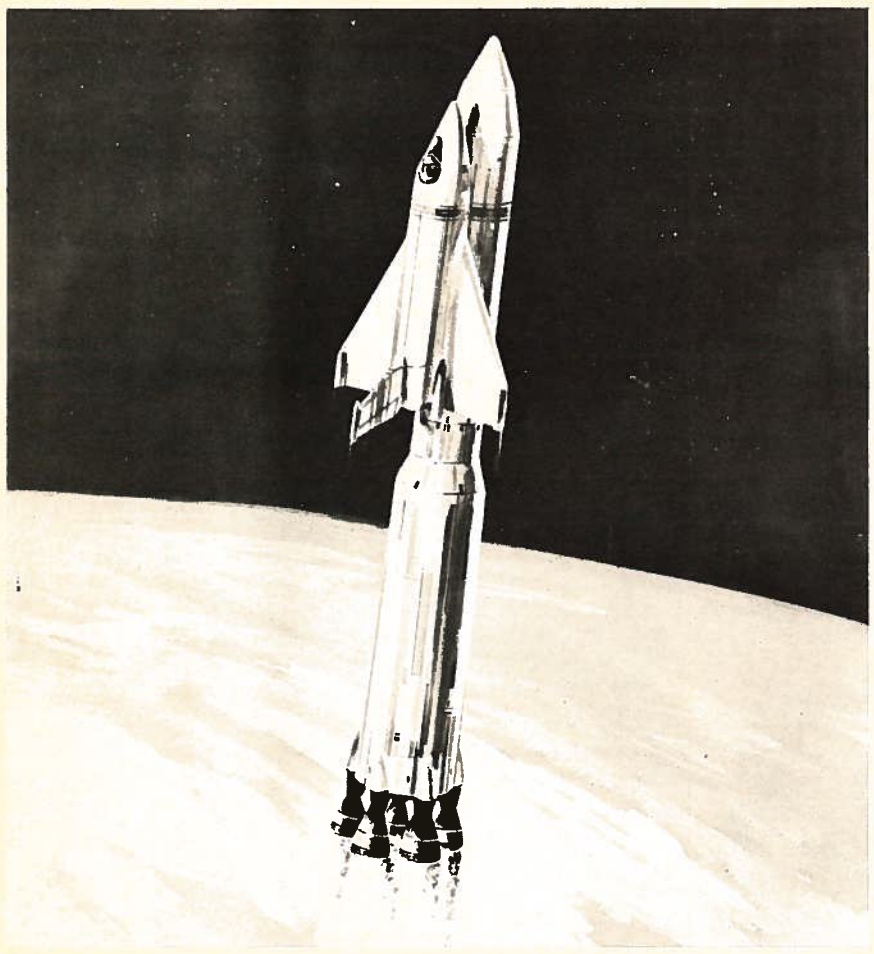
Joe Smith is not a newcomer to Point Mugu: He served there as skipper of VX-4 (Fighter Design Branch of the Bureau of Aeronautics) in the period 1959-61. Moreover, he's flown many a Grumman-made aircraft, including some old ones, the SF-1, Widgeon, Goose, and Duck.

Tom Brancati

Smith, who became a member of the Grumman family two years ago, worked as F-14 staff assistant to Senior Vice President Corky Meyer and, more recently, became staff assistant to the director of Planning in Product Manufacturing.

Smith gained a mechanical engineering degree from the University of Utah in 1938, a Bachelor of Science degree in aeronautical engineering in 1950, and an M. S. degree in international affairs from George Washington University in 1967.

In 1950, he became the first American to receive the McKenna Trophy at the Empire Test Pilots' School at Farnborough, England.



And so into orbit. **One of the more prominent candidates for the Space Shuttle system now being considered by NASA: the hydrogen-liquid oxygen orbiter with external propellant tank behind it and a ballistic recoverable booster. (Art by Bud Parke)**

Busy holidays for Shuttle team

Economy—that continues to be the keynote in the Grumman/Boeing push toward the Space Shuttle proposal. As the Shuttle team at Plant 25 presses forward in the very competitive Shuttle race, Vice President Larry Mead, Space Shuttle Program director, notes Grumman's two immediate goals. One is December 15. By that time the companies competing for the Space Shuttle contract (Grumman/Boeing, McDonnell Douglas, North American Rockwell, and Lockheed) must have their systems recommendations in NASA's hands for consideration.

The second goal: To complete a draft of the Grumman/Boeing proposal as it has finally evolved, so that "when we receive NASA's actual Request for Proposal we will have an integrated, well rounded presentation. We continue to work to keep the cost down; we want it to operate as economically as possible," emphasized Vice President Tom Kelly, deputy director of the Program.

"We're going to need lots of whole-hearted cooperation between now and the holidays, and further support from all directions in the Company for the proposal," he added.

After these many months of study and "trade-offs" by NASA, the plans for the Space Shuttle are shaping up this way:

The "open issue" in the Space Shuttle plan at this time is principally the booster, Mead said. "A question still not entirely resolved by NASA is whether it shall be a ballistic recoverable booster to be parachuted into the ocean and towed back to land, or a 'flyback' type of booster, developed from the S-1C first stage of the Saturn V (and Boeing is right in there with us in booster studies).

The reusable orbiter is planned now with payload bay, crew station, and rocket engines. Fuel is liquid oxygen-hydrogen carried in a large external expendable propellant tank.

Baseline configuration for the avionics systems as divulged by NASA is "quite similar to one we recommended." Vice President Alex Alexandrovich and Howard Wright headed a Grumman avionics team that made an avionics presentation to NASA in early November. "We had very favorable comments," Mead said.

Kelly, perhaps thinking back to the pressures of early pre-contract Lunar Module planning, asserted, "Before the RFP comes out, in these next two-three months, we're going to be working long hours to resolve all the major critical issues in every area."

"The goal as I see it," said Mead last week, "is to come up with a well-planned, realistic, low-cost and low-risk solution to the Shuttle."

Sen. Inouye speaks out in support of Tomcat

(Continued from page 1)

• "Fourth . . . (there were) comparison studies of the F-14 to the current and projected Soviet threats. Results . . . demonstrate that in close-in dog fighting, against mass raids, or high speed, small cruise missiles, the F-14 is the only weapon system presently available that will or can provide air superiority through the 1980 time period.

• "Fifth . . . Phoenix tests to date demonstrate that all the design performance requirements are being satisfied.

• "Sixth, the F-14 airplanes are now flying successfully and are rapidly verifying the predicted flight envelope. For example, in level flight accelerations, the F-14A is exceeding predictions and F-4 chase planes fall behind by significant distances. The F-4 chase airplanes struggle to keep up with the F-14 as they cruise along at high altitude. The F-14A high speed test aircraft easily exceeded twice the speed of sound recently. F-14A's have flown as much as 12½ hours combined flight time in one day, a feat never before achieved with early test aircraft. The F-14A has landed at weights equal to or greater than the carrier landing weight with six Phoenix missiles on board, at speeds significantly lower than the specifications and 20 m.p.h. slower than the present F-4 airplanes. The F-14 is meeting or exceeding its predicted maneuverability capabilities at dog fighting speeds by as much as 25 percent."

The Senator went on to ask "a few fundamental questions: Do we need this weapon system? My study indicates that the answer is 'Yes.' Can our aerospace industry design and construct this weapon system? Again, I feel that the answer is 'Yes.' Has the aerospace industry encountered problems with new weapon systems? Without question, the answer is 'Yes'.

Sen. Daniel Inouye
Challenges 'unrealistic schedules'

But he pointed out that if the new weapons systems are vital to the nation, then the "Defense Department must be given adequate time" for their development and have "adequate funding and sufficient technical milestones to indicate whether such (systems) are ready for production or not."

Supports F-14 buy

Senator Inouye also declared that "industry must be given adequate time, also. It should not be unreasonably pressed to a point where its private financing sources dwindle to a point of desperation in order for it to meet unrealistic schedules based on our ill- conceived 'buy and fly' contracts. . . ."

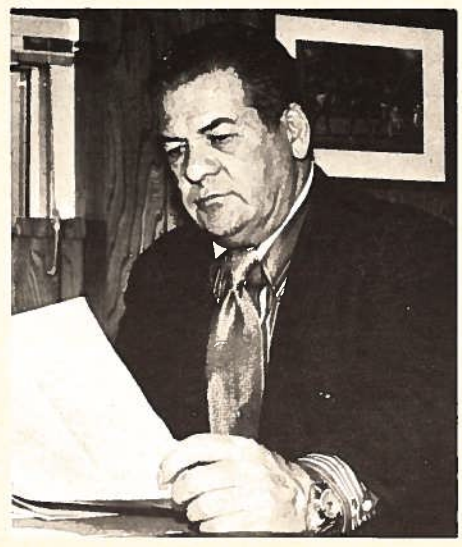
And the Senator concluded by saying:

"I will support the Senate Appropriations Committee's recommendation calling for the procurement of 48 F-14A's in fiscal year 1972."

Name Walsky to Production post

Augie Walsky has been named director of Production Avionics and will report to Vice President Tom Johnson, head of Product Manufacturing.

Walsky also serves as assistant to President Lew Evans of Grumman Corporation.



Augie Walsky

He has almost 32 years with the Company, coming to Grumman in 1940 "just for the summer." When he arrived, there were only about "35 people in electrical," he said. A year later electrical became avionics.

In his present position, Walsky is responsible for setting up and implementing policies and procedures for the development and production of avionics in Product Manufacturing. He is also responsible for personnel-related functions necessary to maintain an effective avionics manufacturing work force.

Walsky is located in Plant 5 and can be reached on Ext. 3160.

About the cover . . .

Caught in the skies over Connecticut by photographer Dick Sander is a formation flight by three Tomcats—No. 2 with wings extended, No. 4 in mid-sweep configuration, and 1-X with wings tucked in for high-speed flight.

Offer wide range of Fund prizes

An attractive array of prizes is again being offered by the Company this year to encourage Grumman people to continue their support of the United Fund of Long Island.

And what prizes are on tap? Some of them, attractively displayed by Denise Howell (L) of Grumman Data Systems and Marianne Silz (R) of Grumman Aerospace, are shown here. But there are more, 24 in all—the first 16 choices go to full-share contributors, the remaining eight are up for grabs to all Fund contributors.

Denise and Marianne are shown (clockwise) with these prizes: G.E. 24-cubic foot refrigerator; Magnavox 25-inch color TV-stereo combination; Frigidaire skinny-mini washer-dryer; components for amplifier-tuner combination; Polaroid camera; Magnavox 19-inch color-TV; Sylvania 18-inch color TV; and Caloric gas range. (Photos by Bob Settles)

Still time . . . set Jan. 18 for United Fund drawing

For those who have thus far forgotten, in the press of business, to chip in to help the United Fund of Long Island and the more than 600,000 people who will benefit from the aid, now is the time!

The core of the people-care effort is the awareness that no one can truly exist as though he were (in Thomas Dibdin's phrase) "A right little, tight little island." The time of the absolute hermit — if there was ever such a time —has gone. Like it or not, we live in mutual interdependency.

Or, to be less philosophic, how do you respond when the kid down the street suffers from cystic fibrosis? When a neighbor has a disabling accident? When your child or wife or husband requires serious surgery? Are you then indifferent, content to ignore it all . . . as long as **you** seem healthy?

You must know, too, that there may be a day when the unexpected hits you. And there should be somebody to provide help. In the simplest terms, that "somebody" is anyone who can respond because others have been willing to give. And that's what the United Fund is all about, hundreds and hundreds of skilled and compassionate people serving in 19 non-profit hospitals and 60 voluntary agencies on Long Island.

The load on these hospitals and agencies is growing at a near-fantastic rate. What sufficed last year—$2.8 million—cannot suffice today. Because of expanding population, costly medical devices and services, and escalating living costs, this year's goal is $4 million. It's a lot of money; there' no doubt about that. But what is the realistic alternative? Is it realistic to "let George do it," especially if George turns the question back on you? How then do you respond . . . without retreating to that non-existent "tight little island?"

Well, you may say, Joe and Andy and Joyce and Pete make a lot more money than I do, and I'm hip-deep in obligations, and I just can't afford it. Maybe you think that's true. Maybe it is true, as you see it. Then get down to the hard nub of it: Are you really saying that you **cannot** afford even, say, 50 cents a week? Even if it were deducted automatically each week, money you never saw?

Consider that . . .

All-in-one appeal

Consider, too, another side of the issue. Were it not for the United Fund, how many times would you be badgered by people ringing your doorbell asking for money to support an agency now in the United Fund, for the money has to come from somewhere? Looking at it that negatively, isn't it easier simply to give once?

The final negative probably is, There will still be other worthwhile causes, beyond those listed in the United Fund brochure. True. There are other worthwhile groups and agencies which, for their own reasons, prefer to solicit funds only for their specific cause. That is certainly their right. All that the United Fund has tried to do is to join forces with as many people-caring agencies as possible in order to minimize overhead costs and inconvenience and maximize convenience for you.

Naturally, how you respond is strictly your business. But if you decide to contribute, you may find that Grumman's payroll-deduction system is the easiest route. If you have questions, call any ESO rep.

Oh! Another thing! There'll be a drawing on January 18 and the top 16 prizes will be won by those who've contributed a Full Share. There'll be eight other prizes, too, for anyone who has contributed to the United Fund.

Prize list

1. Magnavox 25-inch color TV-stereo combination, with one-year's service
2. G.E. 24-cubic foot refrigerator with ice maker and crusher
3. Sylvania 25-inch color console T.V., with one year's service
4. Fisher 120-watt amplifier with Garrard turntable and one pair Super-dynamic speakers
5. G.E. Americana range or Caloric gas range
6. G.E. 25-inch color console T.V., with one year's service
7. RCA 23-inch color console T.V., with one year's service
8. Westinghouse duplex refrigerator-freezer
9. Sylvania stereo console AM-FM
10. Magnavox 19-inch color T.V. (wood), with stand
11. Sylvania 18-inch portable color T.V.
12. Pioneer 70-watt amplifier with BSR tuner and pair Creative speakers.
13. Frigidaire Skinny-Mini washer-dryer
14. G.E. 18-cubic foot frost-free refrigerator
15. Caloric gas range
16. G.E. 16-pound automatic washer
17. Magnavox stereo sound system
18. G.E. undercounter dishwasher
19. G.E. upright freezer
20. Whirlpool automatic washer
21. G.E. 30-inch electric range
22. G.E. port-a-color TV
23. Polaroid Camera outfit No. 360
24. G.E. 23-inch black and white TV console
25. G.E. 23-inch black and white table-model TV with stand
26. Westinghouse automatic clothes dryer
27. G.E. portable dishwasher
28. G.E. or RCA 16-inch portable black and white TV with stand

Beating the rush. **Employee Services Offices have added a line of Christmas gifts, and Bill Sperling of Plant 5 ESO has a line or two of his own. Shopping early (L to R): Kathy McCabe, Operations Planning & Budget; Helen Cvirko, Presentations Services; Marnie Martin, Computing Management; Joyce Giovagnoli, Corporate Suggestions; Linda Warren, Presentations Services. (Photo by John Boles)**

Report $1 million in savings . . . and still counting

You thought the STOP (Stop Tons of Paperwork) Tiger was sleeping, perhaps? All excess paper had disappeared? No further effort necessary?

Wrong. STOP is wide awake and saving costs in many areas. Just in paperwork standardization and consolidation, Grummanites have shown "real awareness and cost consciousness—they've done a great job," reports Bruce Tuttle, who heads the STOP team.

The savings, in fact, have climbed to over $1 million since the STOP program began in mid-1970.

Dollars saved thus far:

$274,000—through reduction in number of weekly activity reports (major in-house programs and departments)

55,000*—through consolidating Engineering Order and Manufacturing Change Order forms (Engineering Orders for F-14 are now photo-reduced and printed "piggy back" on Manufacturing Change Orders)

25,000*—through reduction in number of Min/Max parts catalogs printed each month

18,000*—through reduction in number of F-14 electronics system Engineering Orders by consolidation of data on "X-200" Engg. Orders

*In reproduction costs only

Add these savings ($372,000) to $690,000 previously effected, and the total reaches more than $1 million.

"There are still areas that need to be examined and reported on," Tuttle said last week. The use of microfilm to store information is one development that could be more widely applied. Where appropriate, data can be put on 16 mm film and provide records that are accurate, available, and easy to store. Reader machines are available in most plants, and paper copies, if required, can be printed directly from the film.

By printing from microfilm, the Training & Development Department has been able to publish its PQL (Personnel Qualification List) in less time and at reduced cost.

If you have any recommendations or suggestions for further paperwork savings, write to STOP, Department 290, Plant 5. STOP frequently urges that money-saving paperwork ideas be submitted to the Corporate Suggestion Office, Plant 5, for a possible Employee Suggestion Savings Bond award.

Holiday schedule

Plane News plans a special holiday issue with pictures and a roundup of 1971. This will be distributed on Tuesday, December 21. In order to return to the regular second- and fourth-Friday schedule, the January issues will appear on the 14th and 28th.

Christmas and New Year's falling on Saturday, as they do, the holidays will be observed on Friday.

service milestones

30

Gerard A. Beaudoin, Proto. (2)
John J. Sellars Jr., GSE Mech. (2)
Frank Weiss, Ordnance (2)
Harold F. Dieterle, Mach. Shop (2)
Gerald C. Rowland, Mach. Shop (2)
Ernest J. McNally Jr., Plt. Mgt. & Staff (2)
Eric B. Baker, Prod. Ctl. (2)
Charles W. Bilogan, M P & P (2)
John A. Bernardo, T/M Engg. (2)
Edwin J. Heverly, Router & Shear (3)
Anthony Wendolovski, Maint. (3)
Joseph F. Morton Jr., Plt. Mgt. & Staff (6)
Lanning P. Mersereau, Meas. Std. Plng. & Ctl. (6)
Peter J. Frano, Flt. Dev. (7)
Walter L. Krudop, QC Lab (10)
Herman J. Wientjes, Hyd. (14)
George H. Sievers, B/P & Off-Site Whses. (21)
Herbert W. Howell, Rec. Insp. (24)
John J. Powles, Crit. Matl. Ctl. (27)
Vincent Pepitone, Rqmts. Plng. (30)
Charles P. Ripel, Mach. Parts (30)
Helen J. Giratz, P/S Secy. Serv. (30)
Raymond J. Garland, Wgt. Anal. (34)
William Gianmugnai, Plt. Mgt. & Staff (36)
George Black, P/S A/C Site Mgt. (36)
Leonard J. Mott, Prod. Mgt. (77)
Joseph P. Horak, P/S A/C Site Mgt. (89)

25

John Colgan, Pre-Flt. Fin. (1)
Joseph M. Kern, Elect. Fab. (1)
Kenneth Sealey, Prod. Ctl. (1)
Philip J. Boerum, Sm. Parts Fab. (2)

20

Albert J. Sharp, Heat Treat (2)
Raymond D. Sentz, Prod. Ctl. (2)
Gerard L. Miller, Prod. Ctl. (2)
Thomas J. Holmes, Press (3)
Ernest Benincasa, Flt. Dev. (7)
Arthur T. Rogers, Rec. Insp. (24)
Michael E. Zeltmann Jr., Fbgl. (27)
Harold J. Vetter, Ctr. Sect. Sub-Assem. (27)
Ernest G. Finamore, Insp-Mech. (27)
Ciprian J. Marchetto, Subcon. Mgt. A/C (34)
John F. Miller, Pwr. Plt. Des. Pt. Mugu, Calif.
Norman F. Graf, Prop. Test (2)
Eugene W. Albertson, Out of Prod. Spares (2)
Thomas A. Toomey, Prod. Ctl. (2)
Edward Budny, Prod. Ctl. (2)
Everett C. Coates, Prod. Ctl. (2)
John W. Hervan, Tool Fab. (2)
Albert J. Pavlas, Insp-Mech. (2)
Raynar J. Timmers, Mach. Shop (3)
Walter Makowski, Spotweld (3)
William R. Davis, Engraving (3)
Philip T. Bowdler, Prof. Mach/Hyd. (3)
George H. Nussberger, Tool Fab. (3)
Arthur W. Hinkson, Insp-Elect. (4)
Howard Moffett, Elect. Repair (5)
William A. Cervenka, Pwr. Plt. (6)
Edward Fuoco, Pre Flt. Finals (6)
Bernard Dockweiler, Tool Fab. (11)
Thomas J. O'Hara, Invent. Ctl. (21)
John F. Klein, Research (26)
Edward Karpinski, Plexiglass (27)
William T. Capon, Maj. Assem. (27)
Elliott H. Luce, Sys. Safety (35)
Alexander Zuck, Tool Fab. (36)
Peter E. Viemeister, Pres., GDS (DSC)
Edwin V. Zolkoski, V.P., GII (41)
George J. Bartell, Prod. Plng. (55)
Raymond S. Yerden, Base Mgt. (88)
Leo Schwarz, P/S Fld. Mat./Mod. (95)

K. Sealey | P. J. Boerum | A. J. Sharp | R. D. Sentz | G. L. Miller | T. J. Holmes

E. Benincasa | A. T. Rogers | M. E. Zeltmann | H. J. Vetter | E. G. Finamore | C. J. Marchetto | J. F. Miller

15

Robert H. Watson, Contour Dev. (1)
Franklin L. Rubie, Tool Fab. (2)
John Masek, Safety (2)
Daniel H. Reynolds Jr., Wing Fin. Assem. (3)
Donald L. Fish, Proj. A/C (4)
Christina A. Tulli, Adv. Develop. (5)
Edward V. Brookfield, Public Affairs (5)
Edward G. Hantz, Conf. Data Mgt. (5)
Albert Verderosa, Prog. Mgt. E-2 (15)
Florence G. Herdje, Secy. Serv. (25)
Lawrence Orlando, Proj. Engg. - Dev. Space (25)
Anthony A. Miakicz Jr., Acctg. (30)
Nicholas Marchese, P/S Elect. Engg. (33)
George L. Hall, P/S Engg. (34)
Daniel T. Collins, Prog. Mgt. A-6 (34)
Gerard T. Connell, Fluid Mech. (35)
John L. Garelle, Contracts A/C (35)
John H. Lueck, Prog. Mgt. Stuart (77)
Leo P. Junen, Space Prog. Staff (89)

Project Sterling salute for Plant 5 Food Services

Vice President Tom Rozzi, accompanied by Food Services Director Dick Kosse (C), offers congratulations to manager Jerry Spellman and the Plant 5 Cafeteria staff on earning Project Sterling group award for cost savings.

NASA names Grumman to compete for 'quiet' plane design

The National Aeronautics and Space Administration late last week named Grumman Aerospace as one of three airframe companies to undertake separate $1.5 million fixed-price, six-month contracts for its QUESTOL (Quiet Experimental STOL) Program. One of the design-phase contractors will be chosen for a follow-on fabrication phase to provide NASA with two experimental planes for flight research.

The competing companies are McDonnell Douglas of Long Beach and Lockheed of Marietta. The Boeing Company is teamed with Grumman.

Grumman has been developing a quiet STOL system in anticipation of the award of a NASA contract. As the Grumman team has looked into the future, it has recognized that commercial air traffic will need new control systems, airport capacity, safety, noise abatement, and aircraft ride quality—including realistic criteria for certification.

In military applications there are also the considerations of "austere base environment and improvement of battle damage survivability," to quote Bill Fehrs, Commercial Aircraft Programs director.

The Grumman-Boeing proposal will use a four-engine Gulfstream II in a high-wing configuration with new propulsive-lift concepts: externally blown flap, then augmentor wing. These design features provide high lift and make possible low landing speeds. "STOL" refers to short takeoff and landing, meaning that the airplane will be capable of operating from 2,000-foot runways (including safety margins), for either commercial or military requirements.

QUESTOL has previously been known as the Grumman-Boeing Experimental STOL Transport Research Aircraft (ESTRA). A Grumman-Boeing team headed by Fehrs, Program Manager Irv Watman, and Harry Higgins of Boeing's Commercial Aircraft group, made their oral presentation, at NASA's request, to Gerry Kayten, NASA's STOL Program manager, in Washington, in mid-October.

'Fly quiet'

The choice, by NASA, of a new name for the research program (QUESTOL instead of ESTRA) emphasizes the "quiet" aspect inherent in the study. As Dr. James Fletcher, administrator of the National Aeronautics and Space Administration, told a NASA-sponsored conference on civil aviation recently, "It is no longer enough to think in terms of more power, more lift, more speed. If we wish the taxpayer to continue to support civil aviation, we should take as our motto, 'Fly quiet!'

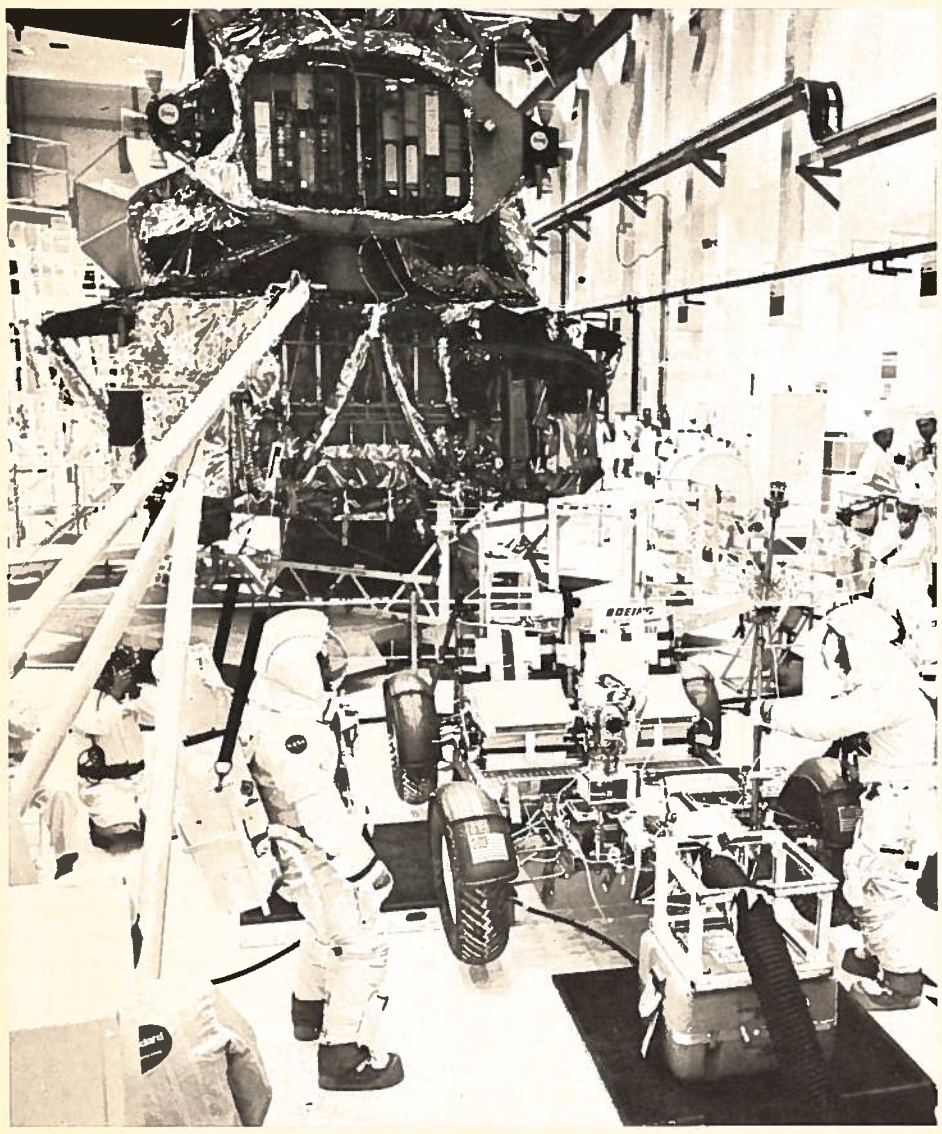
"NASA can be proud of the progress that has been made toward reducing aircraft noise. I believe we can get strong support in Washington to continue this good work."

Grumman's fan jet transport, the Gulfstream II, has the flight characteristics and power match needed for takeoff and cruise that make it a desirable research airplane for diverse uses. Much knowledge has already been gained from its wind tunnel tests and analytical studies; the G II airframe will be able to demonstrate the characteristics being looked for in commercial and military applications. A modified G II will demonstrate the General Electric new, quiet TF-34 engines.

Phase 1 of the QUESTOL Program is a six-month design study and pricing exercise that can lead to Phase 2 for design tooling, and manufacturing of two aircraft. Grumman's Product Development Center under Joe Cipp's direction has been set up to handle such aircraft.

Competition hotter

"Since the real competition is just beginning," said Gene Callaghan of QUESTOL Business Development, "the program will be a highly proprietary one for the next six months. Grumman and Boeing selected a strong team to compete against the Lockheed/North American/Bell, Buffalo/Cornell Lab team and the McDonnell Douglas team. **We want that contract**—and the QUESTOL team will need **all** of our assistance and support to bring it home."



Working ahead. **Rehearsing, constantly, is the job at the Kennedy Space Center on Merritt Island, Florida, as the back-up crew for the Apollo 16 LM 11 crew work with the Lunar Roving Vehicle. Launch is set for March 17—St. Patty's Day. (NASA photo)**

More than lip service?

Larry Mead has a new memento in his office. When members of the United Nations Committee for the Peaceful Uses of Outer Space paid a recent visit to Bethpage to see what Grumman is doing in space programs, Mead, as head of the reception committee, held a question and answer period in Plant 25 toward the end of the day. The Third Secretary of the Permanent Mission to the UN, Vatali Bagno, asked Mead:

"Will the Space Shuttle be for moon exploration?"

A: Yes, probably.

"I hope so, so the Russians can have a ride in the Shuttle."

A: Fine. Send money.

Bagno reached in his pocket and handed Mead a ruble.

Says Mead's plaque, with ruble mounted on red background: "The Russians have now paid more than lip service to international space cooperation. This ruble, from Mr. Vatali Bagno, Third Secretary of the Permanent Mission to the UN, is a deposit for a reserved seat on an early Space Shuttle Flight."

Insurance note for parents

Parents of 19-year-olds are reminded that children born in 1952 must take up their own insurance responsibility. Blue Cross-Blue Shield coverage for 19-year-olds runs out at one minute after midnight, December 31. To transfer them to their own contracts (whatever they have had under the Family contract), parents should fill out the transfer certificates available from Employee Services Offices or the Grumman Insurance Office in Plant 28, Ext. 1040. They have 60 days after December 31 for the conversion, but no more.

Travelers Insurance has a similar ruling for 1971's 19-year-olds, but its deadline is January 31, 1972. The completed insurance application and first payment must be received by The Travelers Insurance Company within 31 days following February 1, 1972. Forms are available from the Grumman Insurance Office or ESO.

Converting within the time limits specified lets the insurance coverage continue without interruption and gives the 19-year-old the benefit of the group, as opposed to an individual, rate.

Cites need for continued space flights

Exploration of outer space could hold some of the answers to the earth's pollution and population problems. Scott MacLeod, Grumman chief consulting pilot, told the Suffolk County Medical Society and Suffolk Academy of Medicine in a recent joint meeting. MacLeod said a manned space laboratory should give information in geology, agriculture, all weather conditions, and all kinds of pollution.

Dr. Clifford Seitz, Space Special Projects, told what the Company learned from the Ben Franklin laboratory experiment in 1969. It spent 30 days submerged in the Gulf Stream, drifting from Florida to about 300 miles off Boston. Its findings included studies of the psychology of the six-man team during 30 days under water. He said Grumman now believes a highly motivated crew can function well under stress while confined in small space for a long period of time.

Plates on file?

All personnel are asked to let Plant Protection have their license plate numbers. Cards are available from Employee Services representatives; just fill one in and give it back to ESO. With these on file, Plant Protection can let you know if you have left your lights on, have a flat tire, have left your engine running, or need to move your car for snow removal, or for other reasons.

Focus on Shuttle. **Vice President George Skurla, director of Product Engineering, and Vice President Larry Mead, director of the Space Shuttle Program, recently named Howard Wright (2nd R) as Engineering manager on the Shuttle, with Dick Kline (R) and Bob Carbee (L) as assistant managers. Here, the spaceplane Engineering team leaders are meeting with Skurla to update him on the latest Shuttle configuration. (Photo by John Boles)**

Social Security not just for 'oldtimers'

It's not just for old-timers, you know . . . Social Security, I mean. It's a form of insurance protection, four-pronged, too:

- Disability insurance, for him(her) self and family
- Survivor's insurance for the family should he die
- Retirement insurance
- Pre-paid health insurance (Medicare) at age 65

In any event, anyone paying into Social Security has protection benefits he may not be aware of. Why not get the full scoop?

By the way, about 850 Social Security offices around the country are serving as clearing houses for complaints on substandard conditions in medical facilities.

CALENDAR of events

Notice of events for period Dec. 21 - Jan. 14 should reach Plane News by **Tues., Jan. 4.**

Am. Radio Club: Wed., Dec. 15, 5 p.m., WA 2LQO shack on roof of Plant 5. E Goodman, Ext. 87125.

Amer. Soc. for Metals: Wed., Dec. 15, cocktails 7:30 p.m., dinner 8:30 p.m., Milleridge Inn, Hicksville Rd., S. Jericho Tpke., Dr. Edward Sayre, Brookhaven Nat'l. Lab. on "Proving the Secrets of Oil Paintings w/Nuclear Magic." Joel Greenspan, Ext. 2021.

Chess Club: Every Tues., 4:30-9 p.m., Plt. 3 cafe, inter-company tournaments. Alex Ikonnikow, Ext. 7591.

Dance Club: Ballrm. danc. classes: beginners Tues., 8:30-10 p.m., St. Francis of Assisi, Northgate & Clay Pitts, Greenlawn; adv. Thurs., 8:30-10:30 p.m., Portuguese Amer. Hall, 306 Jericho Tpke., Mineola, $2/session. Len Luke, Ext. 84065.

Duplicate Bridge Club: Every Thursday, 5:45 p.m., Plt. 3 cafe, partnerships arranged. S. Stone, Ext. 3652.

Ex-Servicemen's Club: Wed., Jan. 5, Plt. 28 audit., reg. month. mtg.; vets' counselor avail. every other Thurs. start. Jan. 6. Al Kordula, Ext. 87259.

Family Campers: Sun., Dec. 12, 5 p.m., Plt. 18, gen'l. mtg. & Christmas party. Bill Lord, Ext. 2914.

Fenc. Club: Mon. & Wed., 4:30 p.m., Plt. 30 cafe, competitive fenc. and instructions. Joe Campisi, Ext. 87587.

Flying Club: Fri., Dec. 10, 5 p.m., Plt. 28 audit., month. mtg. Mal Gerry, Ext. 1396.

Huntington Toastmasters Club: Mon., Dec. 13, 8 p.m., Allstate Bldg., 201 Old Country Rd., Melville, improve presentation, plan., organization, & delivery. T. Campbell, Ext. 3157.

Human Factors Soc.: Fri., Dec. 10, 8 p.m., City Univ. Graduate Ctr., 33 W. 42nd St., N.Y.C., 3rd fl. studio. Harry Levitt on "Problems in Design in Sensory Aids for the Deaf." Jerry Fox. 9431.

Retiree Club: Wed., Dec. 29, 12:30 p.m., Holiday Manor, annual holiday pty. GAA, Ext. 2133.

Soc. of Mfg. Engineers: Mon., Dec. 13, 7:30 p.m., Polytechnic Bklyn. Grad. Ctr., Farmingdale. Saul Ferdman, dir. of Adv. Space Programs, on Space Shuttle & film "Earth a New Perspective." Dick Knoll, Ext. 2859.

Soccer Club: Sun., Dec. 12, 12:30 p.m., Reserves vs Rocklyn at Rocklyn, 2:30 p.m., Premier team vs Freeport at Freeport; Sun., Dec. 19, 12:30 p.m., Reserves vs Lynbrook at Lynbrook, 2:30 p.m., Premier team vs Jamaica Portuguese at Jamaica, league and cup competition. Karl Hernkind, Ext. 3470.

Stamp Club (Bethpage): First 3 Wed. of month, 5 p.m., Plt. 30 cafe, swap, circuit bks., sales, auctions, discussions. Marty Harow, Ext. 9171.

OBITUARIES

Plane News has received word that death has come to the Grumman personnel listed below. We extend sincere sympathy to relatives and friends.

CHARLES E. COOLEY of Final Assembly, Plant 77, Stuart, died November 27 at the age of 46. He had been with Grumman seven years. He lived at 502 Ulrich Rd., Fort Pierce, Fla.

JOHN F. HRUBY of Air Traffic & Radio Communication, Plant 7, Calverton, died November 28 at the age of 44. He had been with the Company 17 years. He lived at 1180 Locust Ave., Bohemia.

MICHAEL F. LORENZ of Transportation - Equipment Maintenance, Plant 20, died Novemebr 29 at the age of 56. He had been with Grumman eight years. He lived at 213 Whittier Dr., Mastic Beach.

JOHN F. SUCHARSKI of B/P & Off-Site Warehouses, Plant 21, died December 6. He was 62 years old, and had been with Grumman 17 years. He lived at 16 Phillips Rd., Glen Cove.

Cherry heads for bowl tilt

Bill Cherry, son of Pat Cherry, Treasurer of the Grumman Corporation, will be playing end tomorrow for the C. W. Post Pioneers as the team meets Delaware University in the Boardwalk Bowl in Atlantic City.

The game will be televised over Channel 7 beginning at 2 p.m.

Bill is just a sophomore, but the 6-foot-3, 189-pounder nailed down the tight end slot on head coach Dom Anile's Pioneers — no mean feat. In the 10 games played this season, the Pioneers had an 8-2 record, and Bill hauled in 23 passes for 380 yards and three touchdowns. At the throwing end was Gary Wichard, a candidate for All American honors.

According to Jim McKinstry of Material Management, Plant 30, who played pro ball in Canada and was on the New York Jets' taxi-squad—and an assistant coach at Post last year—"Bill's a first-class prospect for pro ball. He' in position now to go at record-setting pace."

McKinstry says Bill has great versatility, and "he can play either tight end or split end, which is an asset. He's strong enough to be at tight end and fast enough to play split end. And he has very, very good hands—the kind of guy who can make the clutch third-down pass catch. The record shows it."

McKinstry should know; he played tight end. "But I didn't have the speed for split end."

As far as Bill is concerned, he's aiming for pro ball. Then, as a major in physical education, he plans to coach high school football . . . but that's looking too far into the future.

The immediate task comes tomorrow in the Boardwalk Bowl. Tune in at 2 p.m. The odds are that Dad will be almost into the set.

Bill Cherry

Lose PHM

According to a contract announcement made by the Department of Defense November 24, "The Boeing Company, Seattle, Wash., is being issued a $1 million contract for design and furnishing of long-lead-time items for the Patrol Hydrofoil Guided Missile (PHM) class ships. The contract is being issued by the Naval Ship Systems Command."

The Navy will debrief Grumman on the contract award sometime next week.

"We are continuing to explore the opportunities in the military hydrofoil field," Dave Walsh of Navy Marketing, Business Development, commented following the DOD statement. "We're looking into the installation and development of new weapons aboard the Flagstaff (hydrofoil gunboat) currently operated by the Navy out of San Diego, and the design and development of the DBH (Development of a Big Hydrofoil)."

The PHM is a 170-ton hydrofoil gunboat 120 feet long, and equipped with surface-to-surface missiles.

. . . and HEAO

Although all is not lost in experience gained and useful work accomplished, there was disappointment at Grumman last week when the National Aeronautics and Space Administration awarded TRW Systems the contract to develop an automated High Energy Astronomy Observatory (HEAO). Four spacecraft are planned for the total HEAO Program, with development of the first two spacecraft coming under this contract.

Somebody's happy

Tom Trifaro is a member of the Grumman Rod and Gun Club so it was to be expected that at the opening of the deer season last month Tom would gather up all the sundry supplies required for such a mission and tramp off into the woodlands. And, indeed, this he did.

In addition to all the traditional equipment, Tom carried a sketch of a 10-point deer drawn by his son, who told Dad that if he got a deer like that he'd really be a hunter. Well, Tom thought, it'd be nice . . . but, well, you know kids. . . .

Tom returned the night of that first day—with a 10-pointer! It dressed out at 190 pounds. Tom was the Big Hunter, without doubt —once his son showed him what to shoot at.

Benefacts folder

The yearly, individualized report of your Grumman benefits, the annual "Benefacts" folder, is being worked on by Benefacts, Inc., of Baltimore, and it should be on its way to your home this month, according to the Grumman Insurance, Records & Benefits Department. Insurance and income figures, pension rights, and Social Security are computerized to bring each individual up to date on the benefits that apply to him and to his family.

Loo fires 656, Dudonis 650 to highlight pin league action

After a short break for the Thanksgiving weekend, the pinspillers jumped back into action recently, and for Fred Loo at least, the brief hiatus must have been beneficial. Fred spun a hefty 656 record in Classic league play, featuring that burst with a 223 and 242—and the latter game was only one pin off the loop mark, too. Loo entered the round with a 160 average, but he didn't finish at that mark.

Another record breaker, this one a 650, was turned in by Bob Dudonis in the Classified league. Bob forged that string on 200, 205, and 245 games. Although his high was one stick shy of the league record, it didn't hurt too much—he owns that one too. Other highlights included Bob Ruotolo's 560, Dodonis's 207-595, Bob Sposato's 217-590, and Ed Meaney's 572. . . . Walt Stehlin's 212-200-590 headed Black listings, with Ernie Neves' 201-579 and Charlie Gebbi's 234-573 next in line.

Snaps Trader mark

When you talk about records, consistency doesn't always pay off. Take Charlie Howard. He fired a 218, 208, and 208 for a very respectable 634—but it fell short of the Trader league series record by 20 pins. But Bob Washington snapped the game mark by 10 sticks with his 255. That was his "up." His "downs" brought him up short for a 555 total. Other brightspots: Charlie Gosline's 215-588, John Stecker's 210-550, and Jim Rose's 212-548. . . . In the Red loop, Lou Gyerriero hit 226-599 to overshadow Stan Domagala's 213-215-586. On that roster were Ben Monte, 570; Joe Glasser, 226-563; and John Strakosch, 201-551.

It was a clear case of "His 'n Hers" in a recent meeting of the Century Mixed loop a couple of weeks ago as Bob and Marilyn Cozzette swept individual honors, keeping the Vaya Con Dios atop the standings and contributing to a 1985 record-tying series with Marge and Joe Frisino. Marilyn hit 184-486 (she owns a 222 record), while Bob pushed to a record 620 on a 227 game. Other scores Bill Kallansrude's 522, Mark Guss' 541, Dick Hutton's 210-542, and Grace Fraser's 470. In a later round, Marge Kintz hit 208-529 (to tie the string record) and Bill Gentzlinger shot 207-580.

Limbering up

Ernie Jenkins got in some early practice for the upcoming varsity rolloffs by firing a 224-213-634 in the Bethpage Nite Owl league in a session surprisingly lacking in outstanding efforts. The only other standouts were Bill Buchman, 207, and Rudy Dunkley, 205. C'mon guys, you can do better than that! . . . Rocket results showed Kevin Wall's 232-605 and Joe Whitney's 233-561 atop the list. Other high scores were Earl Levy's 543, John Cortese's 558, and Larry Schneider's 210-537. . . . In the Masters, Rick Sawey hit 225-793, Sid Kaufman (where you been, Sid?) 225-223-792, Jake Brouillard, 773, Dick Spalding 767, and Jack Nielsen, 241-764.

Fred Loo
Hits 656 in Classic play

Rounding out the action in GAA-sanctioned loops, Vince Crevoiserat collected 243-610 to lead the scoring in the Hawkeye Mixed league, with Arlene Schwemmer's 172 and Dot Jacobsen's 470 high for the women. . . . Tom O'Connor tied the Aerospace circuit's series mark with 609, "near-missed" the 245 game record with a 242, and paced the Jesters to game and series records of 778 and 2130. Other highlights: George Ulrich's 201-565, Fred Kuehne's 204-560, and Bill Swinson's 550.

Berka, Wicks hold top guns

The hot shots on the Grumman D pistol team socked it to the Grumman P squad in the L.I. Industrial league recently, but Rick Wicks of the losers walked off with individual honors. Rick hit 280, while Al Berka fired 278 to lead the Ds to their 1062-1043 victory. Teaming up with Berka in that win were Joe Oliveri, 270, Bill Klusmeyer, 264, and Roger Seybel, 250.

Coming out second best in that encounter must have aroused Al a little. He came back with a sizzling 289 out of a possible 300 in the .22 caliber competition to pace the D's triumph over Kollsman, 1083-1012. Oliveri's 275, Klusmeyer's 261, and Greg Criscione's 258 were on the winning tally sheet.

In other results, in the Industrial sharp shooter division, Dave Rice finished with 284 as the Grumman A team also knocked over Kollsman, 1071-1001. Herb Wolter's 270, John Crawford's 262, and Paul Pantason's 255 aided Rice's effort.

The P squad took it on the chin again, this time from Brookhaven National Lab, 1059-1044. In that effort, Phil Boehm's 269, Ron Trenker's 266, Hank Chau's 260, and Charlie Nauss' 249 were high for the losers.

In sharpshooter action, Bill Boyce's 256 and Hal Saltzman's 250 paced the Grumman B's 961-951 win over Pan Am.

Gendron high in hoop clash

Should the Newcomers of the Tuesday basketball league and the Spoilers of the Wednesday loop ever get together, the crash should be something to see. After the Spoilers got off to runaway victories over Propulsion and the Supporters earlier this season, the Newcomers zapped the Druids and Hustlers pretty much the same way.

Frank Quarto hit for 29 points as the Newcomers whacked the Hustlers, 108-47. Joining him in that rout were John Ebron (14), Ed Krol (14), and Lee Gendron (14).

Ebron looked so good that he was "traded" to the Druids in a share- the-wealth plan, and the change must have done him good. John collected 27 points in his next game. But they came against his old team, the Newcomers, and they weren't quite enough. Lee Gendron of the Newcomers hit for 30 to help defeat the Druids, 79-60, with help from Ed Krol (24) and Doug Keulin (18).

In the Hustler-Druid encounter, John did it again. This time he finished with 30 points although the Hustlers won it, 73-62. Heading the winners' scoring were Bob Hambrecht (15), Walt Gleich (14), and Bill Foote (13).

Calling candidates for varsity bowling trials

Will the Grumamn women continue their dominance of the L.I. Industrial bowling tourney? . . . And will the Grumman men finally find their way back to the winning path in their segment of the bowling classic?

Tuning in next week won't do much good, because the answers to those questions won't be apparent until sometime next spring—and then a great deal will depend upon how many of the top bowlers in the Company answer the Grumman Athletic Association's call for the men's and women's varsity in tryouts.

The only thing that has been determined is that the Grumman Mohawks will not be defending their Nite Owl championship; the tournament was cancelled. But that disappointment has its brighter side: some of those high-average Owls could bolster the varsity's hopes of capturing the tourney title pin 1972.

Here's how the varsity trials shape up:

- To be eligible, a contestant must have compiled an average for at least 24 games in an ABC or WIBC league.
- The minimum average for men is 175, and women, 125.
- If a bowler competes in more than one league, his (or her) combined average must be at least equal to 175 (for men) or 125 (for women).
- Entry averages must be computed as of the week of December 13-19.
- Application blanks must be filled out completely and mailed to GAA, Plant 28B.
- Entry deadline: December 31.

Both the men's and women's trials will be conducted at Mid Isle Lanes in Hempstead, with the men kicking off the action on Saturday, January 15, and continuing each Saturday through February 12. The men will roll a total of 27 games, with the field reduced to 32 after 12 games (January 22), then sliced to 24 after 18 games (January 29), and to the top 10 following the 24th game (February 5). The 10 varsity team members will roll three more games on February 12 to determine the starting five in the L.I. Industrial classic.

The contestants for the women's team will roll 12 games in all, starting January 22 and finishing February 5.

In industrial play, the men willl once again kick off the action. Their tourney starts Saturday, March 4, and runs through March 25, with total pinfall for 12 games determining the team crown.

Total pinfall for 12 games will be the determining factor in the women's Industrial classic, which will start April 8 and continue on April 15 and 22.

Remember, the deadline is December 31.

Varsity Bowling Trials

Entry Blank

Name .....

Badge No. ..... Plant ..... Dept. ..... Ext. .....

Qualifying Averages

Men (175) Dec. 13-19, inclusive Women (125) Dec. 13-19, inclusive

Average	League & Lanes	No. Games
.....	.....	.....
.....	.....	.....

Submit to GAA, Plant 28B

Entry Deadline—Dec. 31, 1971

Ride Wanted

L.I.: To Chicago, around Jan. 2, share driv. & costs. LY 3-3873.

Car Pool

NESCONSET: To Plt. 25. 724-1469.

LITTLE NECK: Queens, serv. rd. of LIE, to Bldg. 40 Data Ctr., 8-4:30 p.m. 212 631-5268.

WESTCHESTER: Bronx, Throgs Neck Br., to Bethpage. C. Rait, Ext. 2927.

N. BAY SHORE: Or S. Brentwood to Plt. 6, 7:30-4 p.m. Phil Parisi, Ext. 57-427.

Swap

HOUSE: Dec. 18 thru Jan. 2, Merritt Isl. & L.I. 305-632-0229.

For Adoption

RETRIEVER: Blk. fem., 7 wks., affectionate, gd. home. 212 527-6608.

PUPPIES: Germ. shep., 1 mo., brown or blk., 8, healthy. MO 5-6262.

Wanted

BOAT TRLR.: For Blue Jay class sailboat. 549-4705.

MISC.: Eng. & eng. compart. dr. for '67 VW Beetle; shop manuals for '65 Plymouth, Fury, & '67 Pontiac Catalina; rims for '67 Pontiac Cat. 541-2835.

BIKE: 20 in. girl's. 731-3993.

DART: Or Valiant, '70 or '71, low mi., must be clean, buy or offer '67 Ford wag. as part. trade. 589-3789.

UTIL. TRLR.: Med. capacity, gd. frame & whls., reason. 588-6793.

ENGAGE. RING: 75 pts. or plus, reason. GR 5-6129.

GOLD PIECE: $20, gd. cond., fair price. GR 5-6129.

VW: Bug, wreck. '68 or '69, front end parts, axle, fend., hood, glass. J. Achilich, Ext. 1427.

RID. BOOTS: Eng., sz. 8, helmet, sz. 7. 541-2543.

SHOP MANUAL: for '57 Ford. 364-2379.

HOT AIR FURNACE: Home, oil fired w/controls, min. 120,000 BTUs nded. 475-9369.

GO-CART: W/wo eng. SU 1-1924.

CEMENT MIXER: ¼ or ½ bag w/rubber tires. 924-5093.

GATES: Chain link, 3 ft. by 3 ft., used. IV 9-4861.

SHOP MANUAL: For '63 Chevy. 724-1958.

For Rent

ROOM: Furn., pvt. bath & ent., nr. Grumman. WE 5-5012, after 6.

APT.: Sayville, 2 bdrm., furn., w/wash. & dry., work shop, gar., all util., $225/mo., avail. 1/11/72. Phil Parisi, Ext. 57-427.

ROOM: E. Meadow, lrg., furn., pvt. ent., bath, TV, refrig., nr. shops, gent. only. 333-7849, after 4.

GARDEN APTS.: Patchogue on the water, $189. 475-6070.

SKI CHALET: Hawk Mt., view of Pittsfield, Vt., nr. Killington & Pico Peak, 3 bdrm., liv. rm. w/firepl., kit., din. area, avail. weeks & wkends. 589-6697.

ROOM: Nr. Grumman, furn., pvt. bath & ent. WE 5-5012, after 6.

SKI LODGE: S. Vt., new mod. facil., firepl., slps. 10, avail. wk., wkends, & holidays. 212 291-4891.

For Sale

STEREO: Cust. cab., 6 ft. sol. wal., w/rec ca cut prof. turntbl., Collaro changer, Viking stereo record tape deck, 2 Brociner 30w ea. amp., Lafayette pre-amp, 2 sep. B302A spkr. sys., $550. PY 6-4185.

CAMERA: Graflex Norita 66, 2¼ S.L.R. w/80 mm 2.0 lens, new, $270. 212 923-8509.

MOVIE CAMERA: Bell & Howell 8 mm, 3 lenses, case, $50. 598-1525.

MERCURY: '65 Park Lane, 4-dr. hdtp. sed., pwr. steer. & bks., 4 new tires & snows, xtras, $750. BA 3-2809.

MG: '71 Midget, red conv., 8,000 mi., $1,895. AT 6-8482, after 6.

F-85: '64, 6 cyl., auto pwr. steer., bkts, $100. MO 7-7660.

STA. WAG.: '67 Ford, 6 pass., V-8, auto., R&H, pwr. steer. & bks., new snows, $950. 333-5772.

RAMBLER: '63 sta. wag., nds. motor job, $50. CH 9-4067.

For Sale

MUSTANG: '66 red conv., wh. tp., w/w, 6 cyl., stick, new bks., recent tune-up, $550. 212 347-6516, after 7.

OLDSMOBILE: '68 Cutlass, 2-dr. sed., all new tires, $1,200. 226-4352.

STA. WAG.: '69 VW sq. back, radio, roof rack, 18,000 mi., ask. $1,750. WE 5-1618.

MUSTANG: '71, V-8, pwr. steer. & bks., auto., cons., gages, wide ovals, $2,850. 929-4009.

TOWN & COUNTRY: '68 Chrysler, pwr. steer., disc bks., 6 way seat, air cond., new belt. tires, mtd. snows, trlr. tow pkg. w/Reese chassis hitch, rear air shocks,, ask. $2,295. 676-3805.

TOYOTA: '69 Corona, 4-dr., blue, auto., air cond., R&H, new tire, low mi. 473-1583, after 6.

BARRACUDA: '68, 2-dr. sed., pwr. steer., auto., 318 CID V-8, ctr. cons., bkts., vinyl tp. 26,500 mi., $1,250. 379-5914.

CAMPER: For 8 ft. pickup, slps. 2 o'cab, stove, water tank, sink, make offer. 735-0433.

For Sale

STA. WAG.: '68 Chevelle Nomad, wh./blk. vinyl int., 307 V-8, air cond., auto.. pwr. steer. & bks., radio, 36,000 mi., $1,500. 543-6589.

VW: '67 Beetle, orig. owner, mtd. snows, xtras, $1.100. 271-1505.

RAMBLER: '64 Amer., $95; pump for well, $30; adapter plates for VW, $12. JU 5-4699.

MISC.: VW bus seat, $15; adj. dolly made for brand piano, rubber casters, $40. 735-0433.

BELT MASSAGER: Nadco elec. on std., $35. 822-0947.

POOL: 18x4, Muskin Surf King, xtra hvy. liner, Diatomite filt., all equip., ask. $200. 667-0219.

AMPLIFIER: Univox, 3 inputs, vol., tone, trem., 12 in. Jensen spkr., $35. OV 1-1247.

GRAND PIANO: Concert, Chickering, 9 ft., 70 yr., $350. ED 4-8815.

FURN.: Marble tp. coffee tbl., 2 match. end tbls., 2 lamps, traditional, $150. 724-4029.

For Sale

HOUSE: Pt. Jeff Sta., 3 bdrm. raised ranch, poss. 4, 2½ bath, din. rm., eat-in-kit., 14x24 panel. playrm., att. gar., w-w, s-s, fully lndscpd., 1/3 acre w/30x30 concrete patio, nr. shop., ask. $37,990. 473-8659, appt. only.

HOUSE: Miller Pl., 3 bdrm. cape, formal din. rm., firepl., 14x14 summer house in rear, city water, low tax, 2 car gar., treed, $29,990. 744-9570.

HOUSE: Wantagh N., ¾ bdrm. split, din. rm., eat-in-kit., lge. wal. fam. rm. w/blt. in bar, 2½ bath, w-w, s-s, work shop, stor., gar., 36 ft. in ground pool, terr. & patio, 5 ft. cyc. fence, wlk. sch. & shops, hi 40s. 221-7627, after 5.

DIN. SET: Chrome & formica, 4 chrs., $50. 799-4315.

DIN. SET: Swivel chrs., wal., $40. 475-9144, after 5.

BDRM. SET: Bk. case hdbd. bd., spr. & matt., 2 nite tbls. w/dwrs., dbl. dress., chest on chest, lrg. mirror, cherry mahog., $150. 588-6793.

MISC.: 2 pc. sect. free form couch, $30; 7 pc. rattan set, incl. 3 pc. sect. couch, chr. & 3 tbls., $95; 26 in. bike, $10; coach carr., $15; birch crib, $10; hi-chr., $10. 587-0339.

MISC.: Kenmore auto. wash. mach., 2 yr.; Frigidaire refrig., sm. freezer comp., $100/both. 698-4485, after 5.

PONTIAC: '65 Le Mans, 3-spd. fl. shift, V-8, orig. owner, $500. 667-5933.

CORVETTE: '65 conv., 4-spd., 327 c.i., 250 hp AM/FM, 45,000 orig. mi., $1,950. OR 6-2558.

OLDSMOBILE: '64, 88 conv., all pwr., $450. 751-1643, after 6.

VW: '66 Squareback, AM/FM, sun roof, $995, 271-9097.

WAGON: '63 Ford Fairlane, V-8, o'drive, not run., $75 or best offer. AN 5-9508.

MOBILE HOME: 4 rm. w/refrig., wash. mach., stove, xtras, in Riverhead Pk., $2,950. 727-5836.

AUTO. PARTS: '67, 327 c.i., 350 hp, Corvette eng., comp. or sell sep. 757-3795, after 6.

AUTO PARTS: 3, 13x5.5 in. whls., Corvair conv. boot, lgt. blue. 941-4247.

MISC.: 2 w/w F78x14 poly tires, mtd. on 14 in. Chevy rims, $30; 2, 14 in. Chevy rims. 271-9097.

BOAT: 29 ft. dbl. cab. cruiser, Richardson, slps. 5, galley, 2 sinks, hd., Chrysler Crown eng., $1,400. RO 4-7499.

SLOOP: 24x18x8x2'/5', fast keel, ctrbd., Daysailor, main, jib, spinnaker, British Seagull 5 hp outbd., $1,600. 669-1715.

CRUISER: '62 Norwalk, 25 ft., new slant 6 in '71, fully equip., will store for winter. 922-6180.

PLYMOUTH: '70 Duster, grn. w/blk. vinyl tp., air cond., 6 cyl., $1,950. 826-5910.

MOBILE HOME: Mobile Home Pk., Wonderwood Villa, Atlantic Bch., Fla., '71, 60x12 comp. w/wash., dry., 3 ton cntrl. air cond. 433-9242, before 3:30 p.m.

TOW BAR: Bumper to bumper, $35. ED 4-6158.

TIRES: 2, 4 ply w/w, 695-14, whls., less than 300 mi., $35. WE 5-4659.

TIRES: 4 Goodyear poly, F78-14, fits 7.75x14 or 7.'0x14, $20/all. 751-2449.

TIRE RIMS: 2, 6.50x13. 423-3106.

TIRES: 2, w/w, E78x14, 4 ply, 2 poly, 2 nylon, $35/pr. 735-5261.

BOAT: '65 Trojan Sea Skiff, 22 ft., Navy tp., 140 hp Interceptor, inbd., slps. 4, $1,700. 486-6597.

BOAT: '60 Resky skiff, 24 ft., 225 hp Flagship, flybridge, S/S, $2,200. JU 1-2940.

BIKE: 5-spd. Schwinn fastback, $45. 665-2467.

MISC.: Boy's Sting Ray bike; 39 in. copper hammered range hood; 21 in. RCA TV. OV 1-7381.

BICYCLE: 5-spd. Stingray, Ross, speedometer, $25. 271-5275.

BICYCLE: Boy's 3-spd., Sears 20 in., all chrome w/basket, $25. HA 7-3979.

ENG. RACER: 22 in. girl's, mirror. 868-4968, after 5:30.

CAMERA: Nikon F w/FTN, hard case, Nikkor, auto. 50mm f1.4 lens, Nikkor 135mm f3.5 lens, lens hoods, filt., BC-7 Nikon flash unit, Nikon mod. 2 pistol grip, latest mod., never used, w/warr., $500. MO 1-5576.

KONICA LENS: 85mm f1.8 Hexanon EE, $75; 35 mm f2.8 Hexanon EE, $65. 212 923-8509.

SLIDE PROJ.: B&H Explorer 500 ,zoom lens, 22 slide trays (40 slide cap. ea.), spare 500 W proj. lamp, $50. 543-3452.

FORD: '67 Galaxie 500, V-8, 289 c.i., auto., pwr. steer., vinyl roof, 2-dr. hdtp., air cond., R&H, stereo tape deck, $1,000. 261-1091, after 7.

MUSTANG: '69 Fastback, auto., pwr. steer. & bks., 40,000 orig. mi., $1,700. 277-9440.

at your SERVICE

This is a free service to Grumman personnel for non-commercial advertisements, accepted on a first-come, first-served basis. Classified advertisements are carried in PLANE NEWS only on the basis that everyone replying to such advertising will receive fair and equal consideration regardless of their race, creed, color, or national origin.
Type or print ad on form available at Employees Service and Engineering counters, and send via interplant mail to PLANE NEWS, Plant 5, Bethpage. List home phone (with area code if outside Nassau or Suffolk). Limit: one ad per person per issue. No item under $10, no firearms or ammunition.

CAMPER: '71 Apache Mesa sol. state, slps. 6, cab., 3 burner stove, icebox, 12v/110v lgt., outlets, dinette, 20 lb. propane btl., city water hookup, elec. bks., spare, canopy, xtras, ask. $1,295. JU 4-7285.

BRIDGESTONE: '71 TMX, 100cc trail., orange, 4 mo., 425 mi., $400. 671-0227, after 4.

MOTORCYCLE: '70, 650 BSA, lighting, sport sz. seat, chrome bars & muff., ask. $1,100. AN 9-4652.

ENG. RACER: 3-spd., 24 in., girl's, blue w/mirror & bell, $15. 868-4968, after 6.

MOTORCYCLE: '71 Honda, 75cc, gold, 9,700 mi., xtras. AM 4-3549.

TIRES: 3, 6.50x13 on Plymouth rims, bal. & new valves, used 3 wks., $35. 433-3066, after 5.

TIRES: 2 snows, Dunlop CW-44, 8:15x15. 433-8707.

TIRES: Snows, 7.75x14 mtd on whls., $25. MY 1-8991.

TIRES: Snows, 7.75x14, w/Buick Skylark rims, $40/pr. 234-1154.

BOAT: '60 Revelcraft hdtp., 19 ft., nds. minor work, new uphol. HA 3-5399.

BOAT: 23 ft. Penbroke Seaskiff, fully equip., slps. 2, stove, refrig., summer & win. cov., $1,700. 767-5034.

CHRIS CRAFT: '59, 32 ft. Cmdr., slps. 6, wtin G 130 hp, f.w.c., bow rail, S/S, depth find., stove, refrig., teak deck, new carpet., elec. bilge pump, spot lgt., AC & DC, 6 hvy. dty. marine batt., 2 props, 2 deck chrs., windshld., compass, xtras. 799-6484.

HOUSE: Plainview, all brick & stone, 3 bdrm. split, 2½ bath, din. rm., sun. rm., den, dinette, full bsmt., 2 car gar., w-w, lndscpd., xtras, $57,000. 935-1942.

HOUSE: 4 bdrm. cape, din. rm., fin. bsmt., corner lot, s-s, recent ext. paint. 884-7111, after 3.

HOUSE: Rockville Ctr., 3 bdrm. Dutch col., liv. rm. w/firepl., full din. rm., eat-in-kit., jal. porch, ½ bath down, bath up, fin. playrm. in bsmt., 2 car gar., ask. $37,500. RO 6-0422.

HOUSE: Wading River, 70 ft. ranch, 7 rm., 3 bdrm., lrg. fam. rm., country kit., full bsmt., gar., ½ acre, pvt. bch., fenc., s-s, o.h.w., appli., $42,000. 929-6440.

HOUSE: Brentwood, 9 rm., 4 bdrm. & unfin. bath on 2nd fl., remod. kit. & bath, s-s, zoned o.h.w. heat, fin. bsmt., ctrl. vac., low tax, will pay pts., 4½% mtge. avail., $27,900. 273-7325.

HOUSE: Bay Shore, 3 bdrm. ranch, panel. den, fin. bsmt., o.h.a., w-w, s-s-, new air cond., above grnd. pool, lndscpd., gar., fenc., walk to SS Mall, xtras, $31,500. 666-4903.

PONTIAC: '69 Firebird, grn., V-8 turbo hyd., pwr. steer. & bks., w/w, xtras, $1,750. 751-3512, evgs.

MISC.: Genuine Sarouk Orientay rug, 9x12; 11 pc. blond din. rm. set w/lrg. mirror; crib & matt.; full sz. bd, spr. & matt; blond bdrm. set, twin bds., spr. & matt., vanity & bench, bureau, hi-boy, 2 mirrors; crystal stemware, goblet, sherbet, parfait, 14 ea. 212 FL 8-8788.

SEW. MACH.: Singer Stylist port., mod. 457, zig-zag, stitch wid., lngth., etc., never used, $100. 423-5299.

PUPPIES: Short hair, pointer, AKC, champ sire, shots & crop. 732-3364.

PUPPIES: Irish setter, AKC, champ sire. 751-2284.

HOUSE: Commack, 3 bdrm. split, din. rm., den, 1½ bath, appli., drapes, carpet., xtras. 543-4828.

HOUSE: E. Islip, 3 bdrm. mod. ranch, gar., s-s, $29,900. JU 1-2977.

DIN. RM. SET: Ext. tbl., 2 leaves, 6 chrs., fabric seats, china closet, wal., $150. 588-6793.

O'HD. GAR. DR.: Wood, 4 sect. w/lgts., 8x7 w/tracks & hdware, $30. HA 7-9142.

TBL. SAW: 10 in. Craftsman, 1 hp 115/230v, tilt arbor w/2 tbl. ext., wood std., $140. WA 1-1171.

ELEC. WORKSHOP: Heathkit 4 transistor exp. set, assem., $15. 751-1256.

ANTENNA: Ama. radio, Hy-gain vert., 10-80 meters, $10. 751-1256.

AMP.: Bass Ampeg B 12xT, 4 Jensen spkrs., 2 channels, trem. & reverb, $225. PE 5-1336.

ELEC. GUITAR: Kapa, tone & vol. ctrls., case, Ampeg amp., $100. 724-757.

VW: '64 Bug, R&H, 124,000 mi., 2 xtra whls., w/tires, xtras, $450. HR 2-0681.

BUS: '64 VW, $350. 587-6365, before 2:30 p.m.

FIAT: '71 grn. 124 sports spider, 8,000 mi., incl. 2 Pirelli 13 in. radial snows w/rims, $2,690. JU 4-6187.

FALCON: '64 sed., 2-dr., all new tires, std., $150. MO 9-4570.

GALAXIE: '70, 4-dr. hdtp., air cond., auto., pwr. steer., 20,000 mi., bal. of warr., $2,500. 922-3114.

DODGE: '61, 9 pass. sta. wag., pwr. steer., auto., R&H, new tires, $250. 588-5196.

HOUSE: Dix Hills, 7 rm. ranch, 3 bdrm., panel. den & eat-in-kit., full bsmt., gar., gas hot water heat., 1/3 acre, treed & lindscpd., sch. dist. 5, s-s, $34,500. 667-1455.

HOUSE: E. Norwich, 3 bdrm. ranch, full din. rm. w/firepl., 20x16 closed panel, porch, corner lot, full bsmt., xtras, $41,500. WA 2-4615 wkends.

HOUSE: Smithtown, 3 bdrm. ranch, din. rm., eat-in-kit., full bsmt., full bath, $27,500. 212 793-1904.

PROPERTY: Islip Manor, 50x125, 2 car gar., city water & gas, nr. RR & sch., $8,500. 305 452-1665.

For Sale

FORD: '69 LTD, 2-dr. hdtp., V-8, auto., pwr. steer., air cond., vinyl roof, burg. alarm, mtd. snows, $1,950. 433-0919.

FORD: '63 Falcon, std. shift, $373. OV 1-1882.

CADILLAC: '55 conv., all pwr., new tp. & boot, blue w/blue & wh., $375. 893-1685.

CADILLAC: '64, 4-dr. hdtp., vinyl roof, pwr. wind. & seat, air cond., $450. LT 9-1680.

VETTE: '65, hdtp. & conv. tp., new bks., transmission, tires, Hurst shifter, xtras, best offer o'$1,800. WE 5-3938.

PLYMOUTH: '66 Valiant, auto., air cond., 4-dr., pwr. stere., nds. bdy. work, $350. 212 243-4226.

TEMPEST: '62, 2-dr. conv., R&H, $75. 735-6492, after 6.

FORD: '64 Galaxie 500, 4-dr., 8 cyl., pwr. steer., $225. 666-4231.

MISC.: '71 VW Superbeetle, $1,850; '70 Volvo 144S, auto., 4-dr. sed., $2,300. 588-4951, after 6.

MISC.: '69 VW, sun roof, 185cm & 170cm & 170cm wod lam. skis, spr., cable bind., woman's lace ski boots, sz. 6. FL 4-6034, after 6.

HONDA: '70, 350, $550. 732-4124, after 4.

TENT CAMPER: '69 Coleman, slps. 4, $400. OR 6-7256.

PUPPIES: St. Bernard, AKC, shots, rough & smooth, champ lines, pvt. breeder, $100 & up. 888-3086.

POODLE: Mini, reg. pedigree, charcoal, 8 wk. IV 3-6910.

PUPPIES: Labrador retriever, AKC, blks., 6 wk., $125. 888-5325.

PUPPIES: Eng. springer spaniel, champ lines, gd. show potent. AN 5-6814.

GERM. SHEP.: Fem. ped., $50. WE 8-5389.

MISC.: Fold. baby carr., $10; 2, 13 in. whls. w/mtd. tires, $10. 864-7175, after 5.

MISC.: Thayer comb., carr., stroller, car bd.. $25; baby food farmer, baby car seat. 681-9588, after 4:30.

CARR.: W/access., $20. 735-5261.

MISC.: Baby carr., playpen, baby walker chr., $15. IV 9-6771.

WED. GOWN: & train, sz. 11, $75. WE 8-5389.

MINK STOLE: Autumn haze, $300. WE 8-5389.

R/C SYS.: MRC F710 5 ch. digital prop. w/4 servos, 72mc, $225. AN 1-5187.

MISC.: 15 in. wire spoke whl. cov., $25/set of 4; lady's roller skates, sz. 7, wh., w/case; Hunter dbl. wind. fan, $20; wood skis, 6 ft. 3 in., new w/bind., $20. 681-9588.

ELEC. GUITAR: Dual pick up & controls, w/case, $50. 475-9369, after 5:30.

WATCH: Man's Le Coultre, auto., alarm, calendar, never used, ask. $99. 799-1360.

SNOWBLOWER: Sunbeam elec., $35. 588-1920.

TAPE RECORD: Tandberg 64X, 2 yr., 15 reels of tape, plastic dust cov., mike, $250. 549-4536.

SURFBD.: 9 ft. 6 in. Bunger, $45. 352-0449.

SKIS: Hart Holiday, metal, blk., Cubco bind., 210 cm, used 1 season, $70. 212 726-2347, after 9.

PROPERTY: 450 acres Camden, Maine, area, wood., some waterfront, lake rgt.-of-way, adj. to state pk., $112,000. 868-9039.

plane
GRUMMAN
news

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For Sale

HOUSE: Freeport, waterfront. 3 bdrm. cust. ranch, 2 math, $39,500. TN 8-4237.

COTTAGE: Deposit, N. Y., ¾ acre, lakefront, access. all yr. round, $13,000. JU 1-8786.

KIT. CAB.: 2, 8 ft. sect., counter tp. range, wall oven, elec., $225. 724-4656, after 5.

FURN.: Maple, full sz. bd., matt., box spg., match. chest & mirror, $50; ngt. tbl. & match. lrg. wardrobe, $25. 269-6132.

WASH. MACH.: Sears Kenmore, best mod., 5 mo., ask. $125. 667-0219.

FIREPL. SCRN.: Brass, will fit open. to 26x38 w/curb, $12. 728-1930, after 6.

BDRM. SET: Triple dress., dress., dbl. bd., 2 ngt. tbls., blond, ask. $100. MY 4-2327.

STORM WIND.: 8 wood, 2 panes in each, 1, 37x36, 4, 31x48 7/8, 2, 30 ¾ x 42 7/8, 1, 23 7/8 x 37, $10. MO 5-7866.

MISC.: Storm wind., door, sliders, replace, wind., pation encl., repairs on s-s panels. OR 1-4265.

HEAR. AID: Dahlberg, 6 mo., $250. JU 1-3470.

HEAR. AID: Beltone Contata o'the ear, 2 mo., $275. HA 1-4956.

MISC.: New Binolux Supreme binoculars, 10x50 CFGT, $35; wood doll house, 24x25x33, $35, hand crochet. popcorn stitch ecru dbl. bdspread, $50; 29 in. girl's bicycle, $10; approx. 6 ft. 6 in. skis, ask. $10; ski boots & cros country skis, $10. MO 5-1228.

MISC.: New Bear Kodiak bow w/case, 35 lb. pull, $40. 671-3198.

MISC.: Shakespeare X10 pro tournament bow, 68 in., 38 lb., ask. $150; Pen Pearson Colt, 64 in., 37 lb., ask. $25; both right hand. ED 3-2751.

HOUSE: Pt. Jeff vill., 3 bdr. cust. col. cape, 1/3 wood. acre, liv. rm. w/fieldstone firepl., formal din. rm., eat-in-kit. w/new deluxe dishwash., full bath, scrn. porch, full bsmt., s-s, w-w, 200v/100am, sep. o.h.w. heat., xtras, $39,900. HR 3-3232.

WASH.: RCA Whirlpool, 2-spd., 5 cyc., $125. 579-4424.

FLASH UNIT: For 35 mm camera, Kakonet spec. transistorized, elect., rechg. or batt. oper., never used, $25. 293-8039.

MISC.: Polaroid color pack II camera, $20; case; Bauer 8mm super 8 zom movie camera, $75; 1 acre prop. Lehigh Acres, Fla. $5,000; water front prop., Pt. Charlotte, Fla., $6,000. IV 6-3713.

CAMPER: '68 Rohmer pickup, self cont., 30 gal. water tank, jacks, oven, icebox, slps. 4, $1,200. PE 5-1752.

CAMP TRLR.: Hilltop, slps. 6, dinette, stor. cab., stove w/0 lb. propane tank, icebox, water, elec., 120v 12v, spare whl., xtras, $825. 549-8038.

MOTORCYCLE: '69 Honda, 350, st. scrambler, $500. WE 8-8065.

TIRES: 2 snows, 735-750x14 mtd. on 5 lug rims, $35/pr; 2, 4 ply (2 poly, 2 nylon), E78x14, $35/pr. 735-5261.

TIRES: W/rims, 8:15x15 w/w, 500 mi., off Ford, $40. 938-6140.

TRAVEL TRLR.: '68 Shasta, 16 ft., range, oven, refrig., slps. 6, Reese hitch, 2 gas btls., $1,475. AN 6-2997.

CHRIS CRAFT: '55, cab., 16 ft., slps. 2, '58, 50 hp Johnson elec., '70 Little Dude tilt trlr., motor not run., $300. Phil Parisi, Ext. 57 427.

BOAT: '61 Pacemaker, 30 ft. Sportsfisherman, new 230 hp Chris Craft, f.w.c., flybrideg, 110W, S/S, slps. 4, dinette, fully equip. SU 1-5867.

PUPPIES: Alaskan Malamute, AKC, shots. 666-0233.

MISC.: Toro pwr. handle w/snow blower, reel lawn mower attach, $150. FL 4-5197.

WASH. MACH.: Sears Kenmore, used 5 mo., best mod., $125. 667-0219.

MISC.: Radio, TV, record changer cons., $50; clarinet, $65; bd. frame for sgl. bd., $10. MO 5-1139.

SKIS: Hd. slalom (SL) 205cm, $70. 775-7870.

STA. WAG.: '66 Dodge, pwr. steer. & bks., R&H, auto.; '69 Apache Mesa I camper, plastic wind., canopy, camp kit., spare tire, slps. 4-6. OV 1-4595, after 5:15.

OLDSMOBILE: '63, 4-dr., new bks., transmission o'haul., R&H, all pwr., best offer o'$200. HA 1-4498.

MUSTANG: '71 Mach I, wh. w/blk. int., wide oval tires, 2 stud. snows, 429 S.C.J., 4-spd. Hurst, 4:11 gears, 6,700 mi. WE 8-0472.

CHEVROLET: '66 Bel Air, stick, new tires, 4-dr. sed., $525. 433-2208.

PONTIAC: '63 Bonneville, 4-dr. hdtp., pwr. steer., bks., & wind., R&H, $300. WE 5-0885, after 6.

VW: '68, auto. stick shift. LT 9-2633.

Holiday memo. **Everybody knows Dr. Bob Jessup, Medical director for Grumman, and a member of the Nassau-Suffolk TB-Respiratory Disease Association. Equally well known is Jack Lemmon, TV and film star. They'd like to remind everyone to use Christmas seals—and lend a helping hand to those with respiratory diseases.**

For Sale

RAMBLER: '66 Classic, powr. bks., fully auto., dual bk. sys., $500. IV 1-5448.

VW: '65 conv., snows, 4 xtra rims, new muff., carb, fuel pump, & tp. JU 6-7774.

CHRYSLER: '71 New Yorker, pwr. steer., wind., & disc bks., rear wind defrost., air cond., AM/FM, heat., $3,500. MO 9-2896.

CARRIER: Car tp., 44x44x13, hand made, comp. waterproof, low profile, $35. TU 8-5548.

SNOWS: 2, 8.55x15 w/w, used 1 season, $15/ea. HA 3-1096.

SNOWS: 4, 700x13 studs, Firestone, fit Mercedes-Benz, $30 pr. HA 3-3138.

SNOWS: 2, & rims for '63 Pontiac, $30. WE 5-0885, after 6.

WHLS.: 2, 14 in. fits Ford or Merc. 931-2934.

MISC.: Refrig., $10; freezer chest type, holds approx. 200 lbs., $20; mangle, used 3 times, $25. 744-0008.

MISC.: Pool tbl., reg. sz., comp. access.; 13 cu. ft. upright G.E. freezer; TV roof ant.; wall exh. fan; wind. fan. 212 FL 8-8788.

ELEC. RANGE: 30 in. Hotpoint, coppertone, $60. 728-0994.

FURNACE: Gas fired Bryant forced hot air, 85,000 BTU input, some duct work & grilles, $50. 935-4448.

MISC.: Leslie tone spkrs., cab., comp. for organ, $400. 212 TA 3-9885.

MISC.: Antique brass fl. lamp w/gl. dome & 3 way lgt., $15; eve. gown, beige lace, satin, sz. 18½, w/bag, gloves, $25. 731-2954.

WURLITZER ORGAN: Ital. prov. fruitwood fin., used 3 mo., ask. $695. 598-0544.

ACCORDION: Soprani, 120 bass, 7 tone changes, pearl grey & wh., $150 or best offer. 234-1281.

SKIS: 6 ft. 3 in. Northland, wood, plastic btm., metal edge w/Cubco bind. & alum. poles, 5 ft. 4 in., $28. MA 3-4936.

SKI BOOTS: Man's '71 San Marco parallel soles, 5 bkle., hvy. lea. lined pad., $25. AN 1-0081.

HD. SKIS: Mod. 720, 208 cm, new, no bind. have been mtd., $115. LI 1-8590.

HOUSE: Oakdale, mother/daugh., 8 rm., 4 bdrm., 1½ bath, bmt., gar., ½ acre lndscpd., nr. shop. ctr., xtras, $28,000. LT 9-9261.

HOUSE: Nr. Ruskin, Fla., 5 rm. ranch, encl. carport, 75x100, fully lndscpd., air cond., xtras, $23,500. 928-2692.

HOUSE: Huntington sch. dist. 3, mod. split, 6 bdrm., 2½ bath, 2 car gar., bsmt., in-grnd. pool, patio & pool house, 1 acre treed, $55,000. 581-3084, after 5.

For Sale

HOUSE: N. Massapequa, 7½ rm. split, 3 bdrm., 1½ bath, full bsmt., o'sz. plot, fully lndscpd., pool, xtras, $41,990. 293-5403.

FURN.: 4 pc. gold sec. liv. rm., tbls. & lamps, din, rm., 4 chrs., tbl. & china closet, mod., reason. 273-3991, after 1 p.m.

CHAIR: Reclining, Ital. Prov., blk. vinyl & wood. 549-3551.

HOUSE: E. Meadow, 3 bdrm., 1½ bath, din. rm., full fin. bsmt., ctrl. air cond., appli., xtras, walk to shops, mid 30s. 538-8227.

MISC.: Dress. tbl., glass tp. w/piano stool & full skirts, bdspread, lamp, $25; lgt. dty. arc welder, brazer, $10. PY 8-4258.

MISC.: Childcraft crib w/matt., $35; tony hobby hore; RCA radio phono, 45 rpm, $10. OV 1-7891.

COIL: Hot water heat., tankless, 6 gal. rating, mod. 723-6, 14¼ lg., 7 in. dia. bolt circle, fits AM std. boiler & others, used 1 yr., $30. HA 7-9142.

STEEL DR.: Fireproof, sol. core, & frame, $25. 212 FI 3-7865.

MISC.: Stereo, Dynakit, stereo 70 amp, $100; PAS-3 pre-amp, $70; 2 Ar4ax spkrs., $80; Garrard type A turntbl., $25. 269-6132.

BUICK: '68 Sportwagon, pwr. steer., bks. & rear wind., roof rack, remote mirror, 2-spd. wiper, windshld. wash. 265-8166.

OLDSMOBILE: '68 Cutlass, all new tires, $1,200. 226-4352.

CORVAIR: '66 Corsa, 4-on fl., Super Sport inst. group, air cond., $575. HA 3-7036.

WAGON: '63 Buick Spec., V-8, pwr. steer., o'sz. tires, $300. 724-3995.

BUS: '67 VW, new batt. & tires, ask. $925. 724-0743.

VW: '69 yel. conv., under 25,000 mi., $1,550. 798-7439, after 6.

STA. WAG.: '65 Ford, 8 pass., auto. drive, R&H, orig. owner, 57,000 mi., $475. 921-3823.

CORVETTE: '64 coupe, blue w/wh. int., mag whls., front bdy. damage, run. cond., $900 or best offer. WE 1-1330.

MOTOR BIKE: 20 in., 2½ hp, twist grip throttle, $40. GE 3-7706.

ENG.: '64 VW, 40 hp, rebld. & inst., $160. 273-6239.

TAPE PLAYER: Auto. type stereo w/fine tuner, bal., tone & vol. controls, channel select., $30. 549-5212.

TIRES: 2, 7.35x14, Goodyear Marathons, 20 mi., $35/for 2. 676-2589.

TIRES: 2 snows, 775x14, used 2 seassons, $10/ea. or $17/both. 757-2046.

GDS unveils new mass memory system to computer world

There's a growing feeling of confidence among the people at the Grumman Data Systems facility in Garden City that their first hardware product, MASSTAPE, is going to be a winner.

The mass memory system was first introduced to the press in New York City on October 27, but it wasn't until the Fall Joint Computer Conference at Las Vegas, November 16-18, that MASSTAPE got its initial public test.

It was there that computer experts and systems specialists from every part of the country got the opportunity to examine the hardware, observe the system in operation, and get answers to specific questions from GDS representatives. According to George Ronkin, director of MASSTAPE, "It was a hit."

MASSTAPE system was introduced to industry at Las Vegas during Fall Joint Computer Conference, November 16-18. Karen Kalish of GDS shows cartridge pac, key segment of MASSTAPE system which is capable of recording and storing up to one trillion bits of information.

On-line system

What exactly is MASSTAPE? It's a new on-line mass storage system for computer installations which gives the user almost instant access to as much as one **trillion** bits of information—and, nearly as important, the MASSTAPE unit provides that capability while reducing actual floor space of comparable tape storage systems by up to 90 percent.

And Apollo made it all possible.

At the core of the MASSTAPE system is a five-inch-long tape cartridge. By applying the high-density recording telemetry techniques developed for the Apollo program, co-inventors George Ronkin and Dave Schwartz were able to package 8,000 bits of data per inch on each of the 16 tracks on the tape cartridges. (Eight bits constitute one digit or byte.) And when combined in a carousel-type arrangement, 44 of these cartridges can accommodate two billion bits of data. But they didn't stop there—they kept stacking these carousels (or "drives," as they are more properly called) to provide more data storage.

Instant access

Here's what has developed: A full MASSTAPE system contains eight storage units with eight drives in each unit—or a total of 2,816 cartridges containing more than 127 billion bytes, or over one trillion bits of on-line information!

Here's how it works:

Say a programmer asks, through a main computer, for specific information from the MASSTAPE system. The MASSTAPE mini-computer selects from previously programmed information the exact storage unit (there are up to eight in each full system), the exact carousel or drive (and there are eight of these in each storage unit), then determines which cartridge contains the desired data and on which of the 16 tracks on that cartridge the information is recorded. All in less than a second!

Removable MASSTAPE pac, displayed by Denise Howell of GDS, holds 11 tape cartridges. Each cartridge can store 8,000 bits of data per inch on each of the tape's 16 tracks. This complete storage module has a 490-million byte (that's nearly four billion bits) capacity. (Photo by Bob Settles)

And when the mini-computer locates the called-for data, it can begin transmitting that information to the main computer up to a million bits per second. Should the host computer want to examine that information at a more leisurely pace, the remaining data is stored on a drum in the MASSTAPE system. It remains there, on call, until the host computer is ready to accept it.

No waiting

This on-call bank of up to one trillion bits of data virtually assures that the main computer (or computers)—very costly items to operate—are never waiting for data to be processed.

While introducing MASSTAPE to the press, President Pete Viemeister pointed out that MASSTAPE wasn't expected to —nor was it designed to—replace all of the tape-reel drives now in existence. He did emphasize, however, that the new mass storage system would be most effective for large computer installations with equally large data banks, and for computers used for time-sharing.

In such installations, he added, MASSTAPE could record and file huge amounts of data in seconds, and retrieve and process it at a later time—also in seconds. That's just not possible with tape reels, he said. And one MASSTAPE unit occupies 16 square feet (about the size of two large refrigerators), only one-tenth the space for an equivalent disk-type system.

Component testing

"Although we feel we had a successful showing at Las Vegas last month," said Roy Davies, MASSTAPE marketing manager, "we still have to convince a lot of industry people it will work. After all, other companies have made plenty of promises about the same type of a system in the past and they weren't able to produce.

"We've already completed over 10 million cycles of component testing of MASSTAPE," Davies pointed out, "and we feel we're well on the way to proving that our system **does** work."

"We do a full hardware and software analysis before suggesting a MASSTAPE installation," said Dave Schwartz, director of operations for the program. "And we feel that because of the straightforward design and implementation of the MASSTAPE system — it incorporates many of the telemetry and high-density recording techniques of Apollo—that computer specialists will feel comfortable with the system. After all, many of them were practically brought up on the various aspects of the MASSTAPE system.

"As for the future," Schwartz added, "MASSTAPE could be readily applied to the Space Shuttle, where there will be huge data bases for both the engineering design and product support phases of the project."

Ronkin points out that MASSTAPE will have to make it on its own merit. "We're on an individual footing within the GDS organization," he said. "We do our own purchasing, marketing, production, shipping, and whatever else is necessary to complete the job. And we pay rent to Grumman Aerospace for the space we use in Plant 36.

"We're a separate cost center — like a small company. The engineers work very closely with production. We're expected to pay our share of corporate overhead, and we'll have our own profit and loss statement.

Space application

"MASSTAPE is the first hardware product of GDS, but we expect others. We're interested in developing 'computer peripherals'—not the main-frame computers, but the storage units, drives, etc., that are necessary to do the complete job."

Until MASSTAPE hit the market, Grumman Data Systems had concentrated on selling computer time, business systems, and various types of services. Now the Grumman Corporation subsidiary has embarked on an entirely new venture in the computer field.

As Roy Davies sees it: "It's estimated that there will be $100 million spent in the mass memory market in the next four years—and we want a piece of it!"